**FIGURE 1**

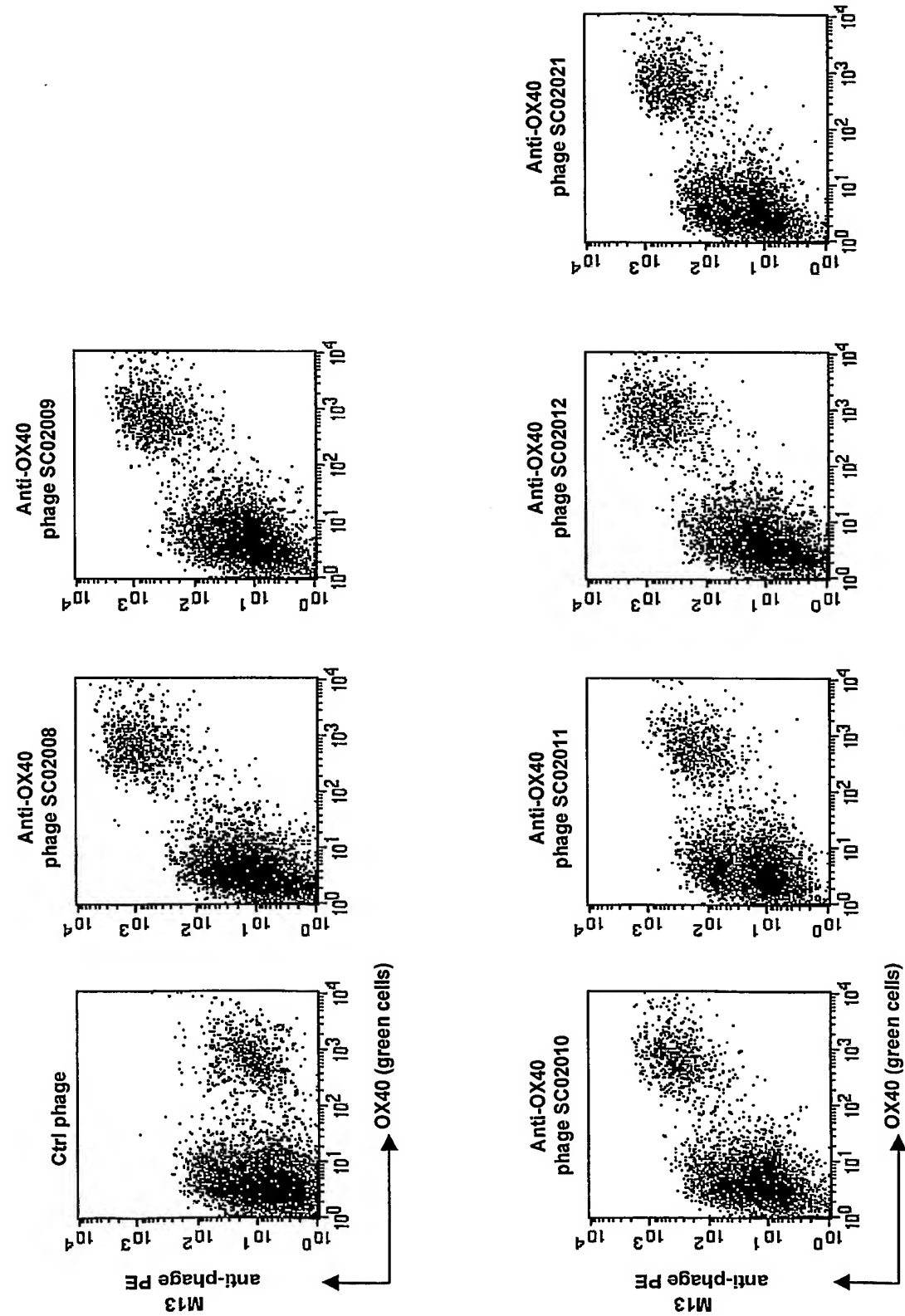


Figure 2

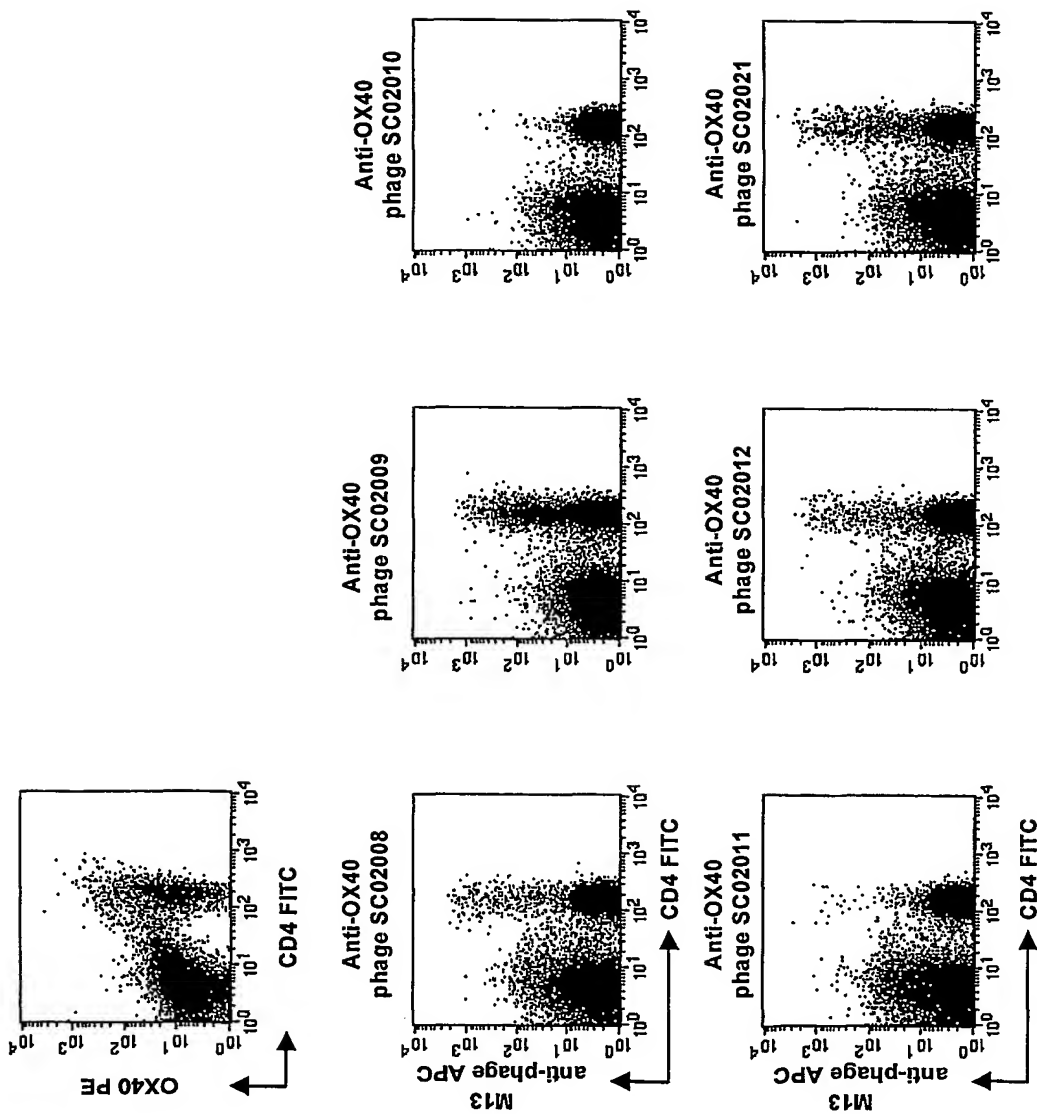


Figure 3A

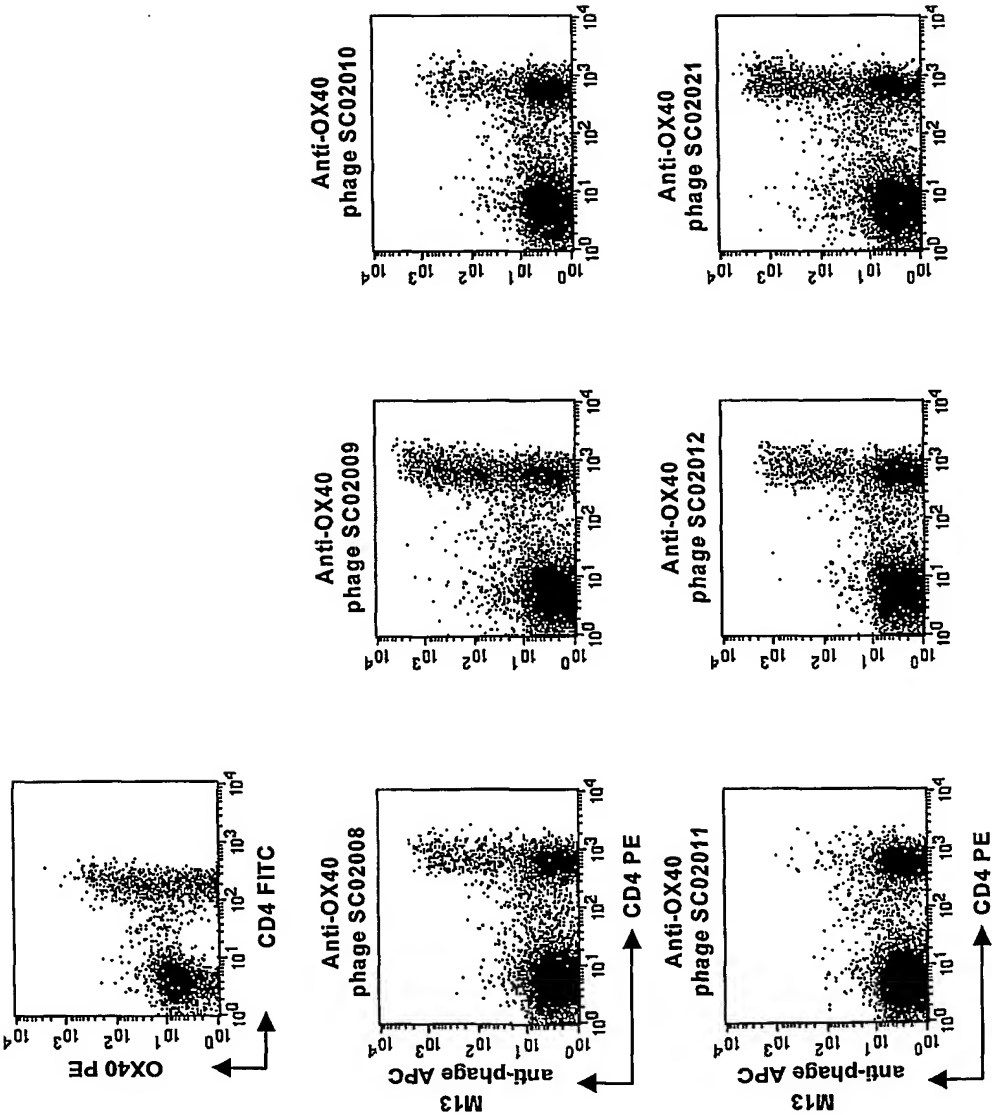


Figure 3B

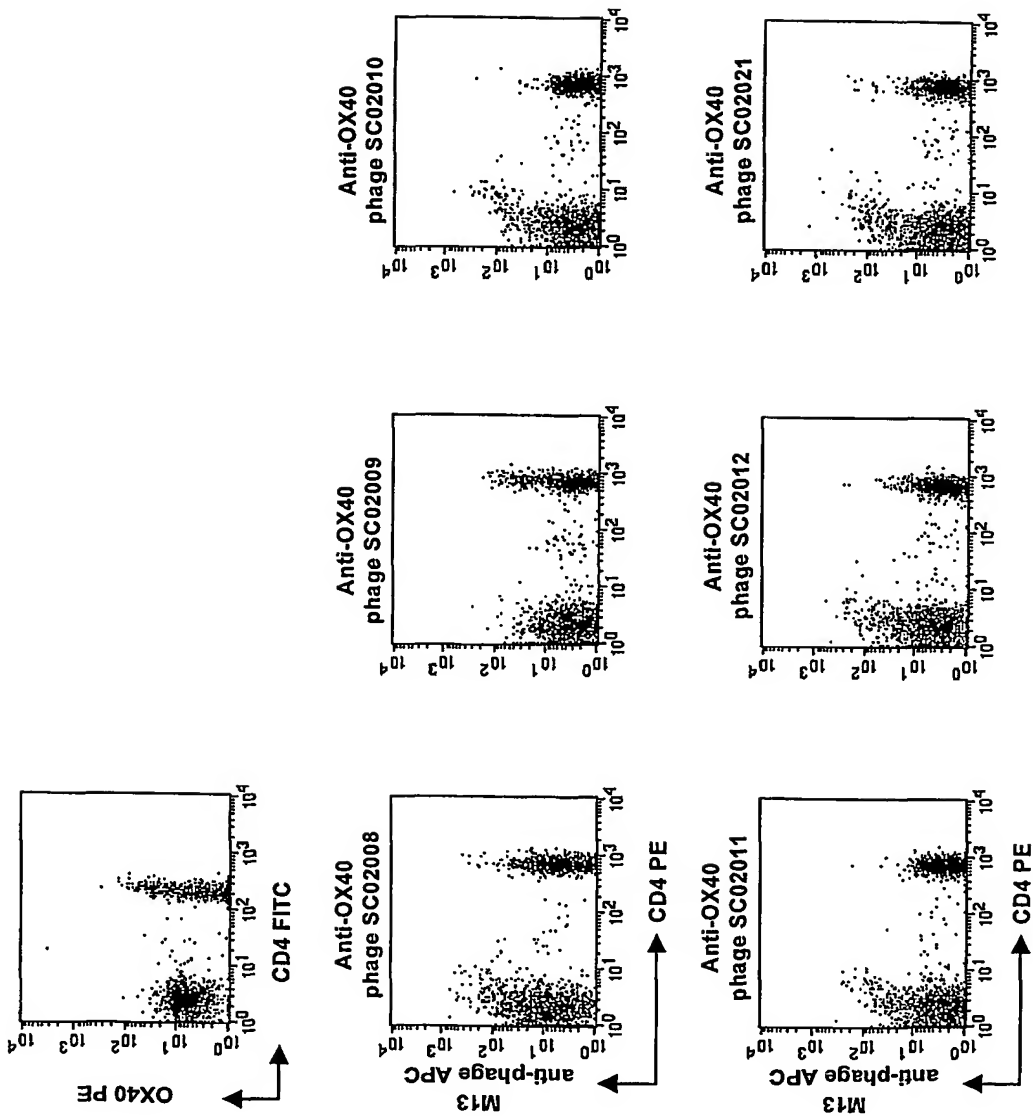


Figure 3C

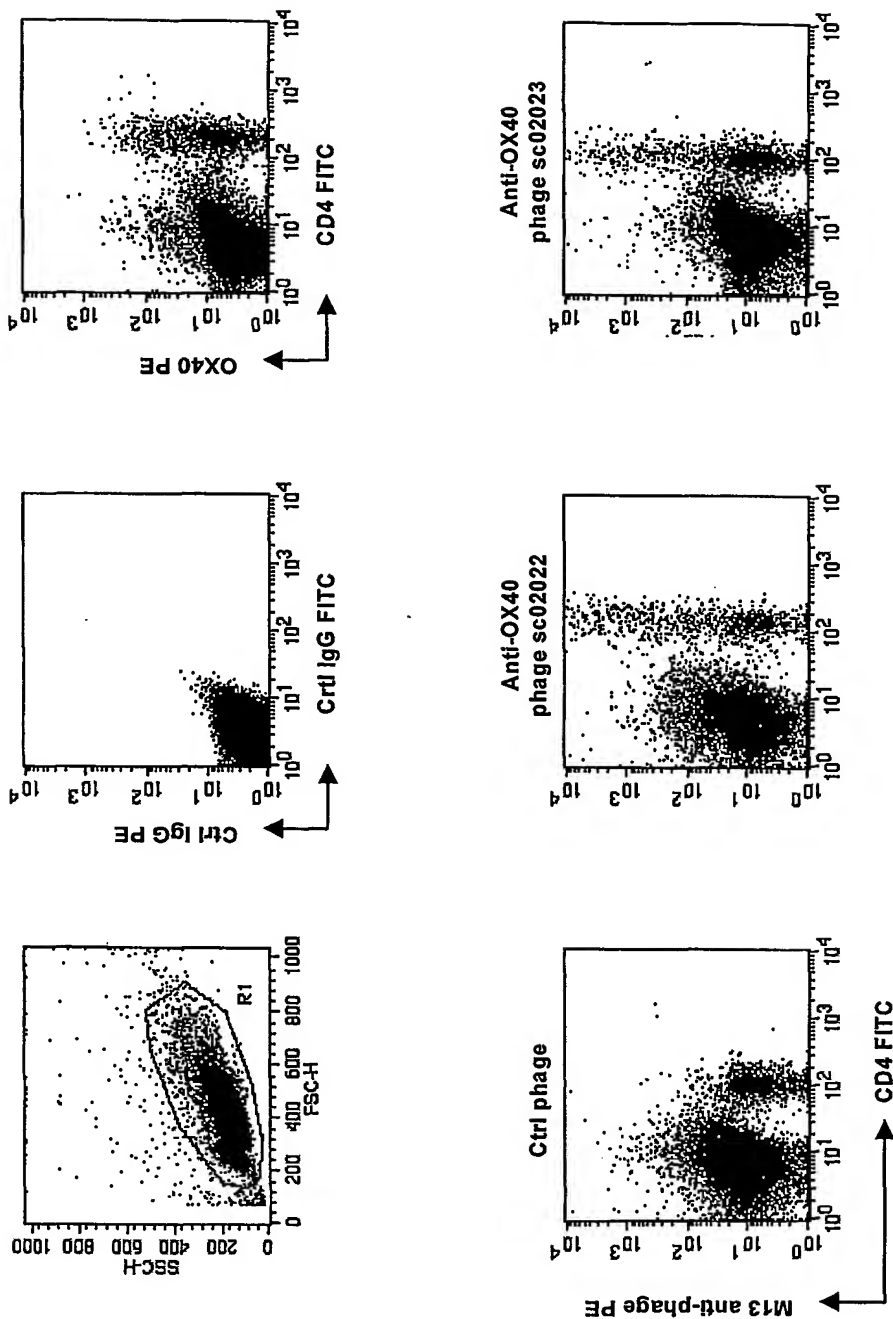
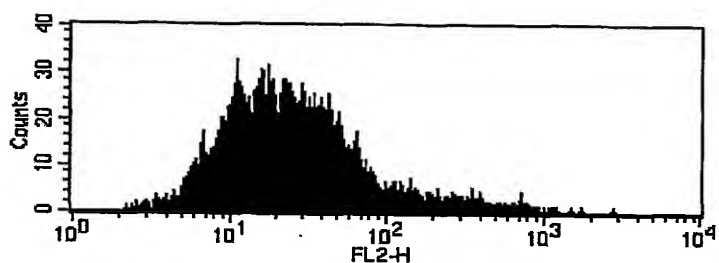
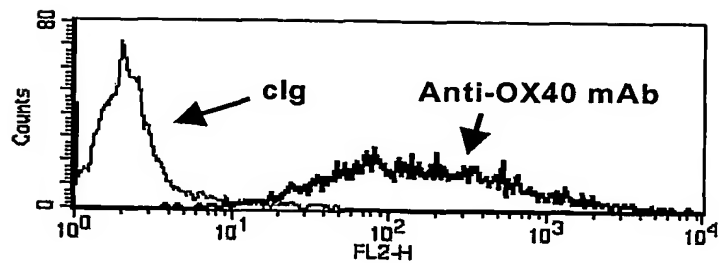
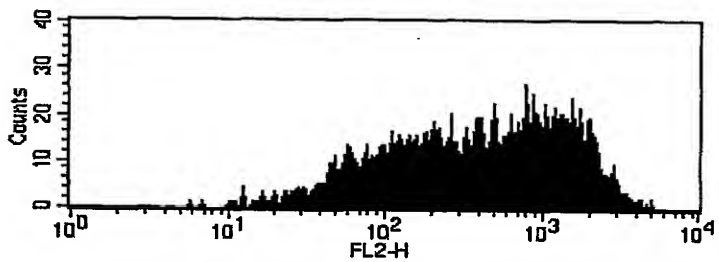


Figure 4A

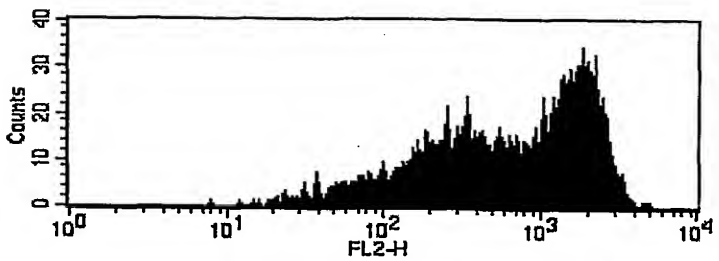
Perc6 OX40 transfectant



Ctrl phage



**Anti-OX40
phage sc02022**



**Anti-OX40
phage sc02023**

— M13 anti-phage PE —>

Figure 4B

Anti-human OX40R scFv SC02008

NcoI
~~~~~

143           M A E V Q L V E S G G G L V Q P G G S L R  
             CCATGGCTGAGGTGCAGCTGGTGGAGTCTGGGGGAGGCTTGGTCCAGCCTGGAGGGTCCCTGAG

214           L S C A A S G F T F S N Y T M N W V R Q A P G  
             ACTCTCCTGTGCAGCCTCTGGATTACCTTTAGCAACTACACGATGAACTGGGTCCGCCAGGCGCCCGGGA

285           K G L E W V S A I S G S G G S T Y Y A D S V K G  
             AGGGGCTGGAGTGGGTCTCAGCTATTAGTGGTAGTGGTGGTAGCACATACTACGCAGACTCCGTGAAGGGC

356           R F T I S R D N S K N T L Y L Q M N S L R A E D  
             CGGTTCAACATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAAATGAACAGCCTGAGAGCCGAGGA

427           T A V Y Y C A K D R Y S Q V H Y A L D Y W G Q  
             CAGGGCCGTGTATTACTGTGCCAAGACCGCTACTCCCAGGTGCACTACGCGTTGGATTACTGGGGCCAGG

498           G T L V T V L E G T G G S G G T G S G T G T S E  
             GCACCCTGGTGACCGTGCTCGAGGGTACCGGAGGTTCCGGCGGAACCGGGTCTGGGACTGGTACGAGCGAG

569           L D I Q M T Q S P D S L P V T P G E P A S I S C  
             CTCGACATCCAGATGACGCAGTCTCCAGACTCACTGCCCGTCACCCCTGGAGAGCCGGCCTCCATCTCCTG

640           R S S Q S L L H S N G Y N Y L D W Y L Q K A G  
             CAGGTCTAGTCAGAGCCTCCTGCATAGTAATGGATACAACATATTGGATTGGTACCTGCAGAAGGCAGGGC

711           Q S P Q L L I Y L G S N R A S G V P D R F S G S  
             AGTCTCCACAGCTCCTGATCTATTTGGGTTCTAATCGGGCCTCCGGGGTCCCTGACAGGTTCACTGGCAGT

782           G S G T D F T L K I S R V E A E D V G V Y Y C Q  
             GGATCAGGCACAGATTTTACTGAAAATCAGCAGAGTGGAGGCTGAGGATGTTGGGGTTTATTACTGCCA

NotI  
~~~~~

853 Q Y Y N H P T T F G Q G T K L E I K R A A
 GCAGTACTACACCACCCGACGACCTTCGGCCAGGGCACCAAACCTGGAAATCAAACGCGCGGGCCG

Figure 5

Anti-human OX40R scFv SC02010

NcoI
~~~~~  
M A E V Q L V

72 CCATGGCTGAGGTGCAGCTGGTGG

143 E S G G G L I Q P G G S L R L S C A A S G F T F  
AGTCTGGGGGAGGCTTGATCCAGCCTGGGGGTCCCTGAGACTCTCCTGTGCAGCCTCTGGATTACCTTC

214 S G Y P M N W V R Q A P G K G L E W V A V I S Y  
AGCGGCTACCCTATGAACTGGGTCCGCCAGGCGCCGGGAAGGGGCTGGAGTGGGTGGCAGTTATATCATA

285 D G S N K Y Y A D S V K G R F T I S R D N S K  
TGATGGAAGTAATAAATACTACGCAGACTCCGTGAAGGGCCGATTACCATCTCCAGAGACAATTCCAAGA

356 N T L Y L Q M N S L R A E D T A V Y Y C A R D M  
ACACGCTGTATCTGCAAATGAACAGCCTGAGAGCTGAGGACACAGCCGTGTATTACTGTGCAAGAGACATG

427 S G F H E F D Y W G Q G T L V T V L E G T G G S  
TCCGGCTTCCACGAGTTCGATTACTGGGGCCAGGGCACCCCTGGTGACCGTGCTCGAGGGTACCGGAGGTTC

498 G G T G S G T G T S E L T Q S P S S L S A S V  
CGGCGGAACCGGTCTGGGACTGGTACGAGCGAGCTCACCCAGTCTCCATCCTCCCTGTCTGCATCTGTAG

569 G D R V T I T C R A S Q S I S S Y L N W Y Q Q K  
GAGACAGAGTCACCATCACTTGCCGGGCAAGTCAGAGCATTAGCAGCTACTTAAATTGGTATCAGCAGAAA

640 P G K A P K L L I Y A A S S L Q S G V P S R F S  
CCAGGGAAAGCCCCTAAGCTCCTGATCTATGCTGCATCCAGTTTGCAAAGTGGGGTCCCATCAAGGTTTCAG

711 G S G S G T D F T L T I S S L Q P E D F A T Y  
TGGCAGTGGATCTGGGACAGATTTCACCTCTCACCATCAGCAGTCTGCAACCTGAAGATTTTGCAACTTACT

NotI  
~~~~~

782 Y C Q Q S Y S T P P T F G Q G T K V E I K R A A
ACTGTCAACAGAGTTACAGTACCCCTCCAACGTTTCGGCCAAGGGACCAAGGTGGAGATCAACGTTGCGGCC

853 GC

Figure 7

Anti-human OX40R scFv SC02011

NcoI
~~~~~

143                   M A E V Q L V E S G G G V V Q P G R  
                  CCATGGCTGAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAGCCTGGGAGGT

214           S L R L S C A A S G F T F S D Y T M N W V R Q A  
              CCCTGAGACTCTCCTGTGCAGCCTCTGGATTACCTTCAGCGACTACACGATGAACTGGGTCCGCCAGGCG

285           P G K G L E W V S S I S G G S T Y Y A D S R K G  
              CCCGGGAAGGGCTGGAGTGGGTCTCATCCATTAGTGGTGGTAGCACATACTACGCAGACTCCAGGAAGGG

356           R F T I S R D N S K N T L Y L Q M N N L R A E  
              CAGATTACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTTCAAATGAACAACCTGAGAGCTGAGG

427           D T A V Y Y C A R D R Y F R Q Q N A F D Y W G Q  
              ACACGGCCGTGTATTACTGTGCAAGAGACCGCTACTTCAGGCAGCAGAACGCGTTTCGATTACTGGGGCCAG

498           G T L V T V L E G T G G S G G T G S G T G T S E  
              GGCACCTGGTGACCGTGCTCGAGGGTACCGAGGTTCCGGCGGAACCGGTCTGGGACTGGTACGAGCGA

569           L D I Q M T Q S P V T L P V T P G E P A S I S  
              GCTCGACATCCAGATGACTCAGTCTCCAGTCACCCTGCCCGTCACCCCTGGAGAGCCGGCCTCCATCTCCT

640           C R S S Q S L L H S N G Y N Y L D W Y L Q K P G  
              GCAGGTCTAGTCAGAGCCTCCTGCATAGTAATGGATACAACTATTTGGATTGGTACCTGCAGAAGCCAGGG

711           Q S P Q L L I Y L G S N R A S G V P D R F S G S  
              CAGTCTCCACAGCTCCTGATCTATTTGGGTTCTAATCGGGCCTCCGGGGTCCCTGACAGGTTTCAGTGGCAG

782           G S G T D F T L K I S R V E A E D V G V Y Y C  
              TGGATCAGGCACAGATTTTACACTGAAAATCAGCAGAGTGGAGGCTGAGGATGTTGGGGTTTATTACTGCC

NotI  
~~~~~

853 Q Q Y L T A P P T F G Q G T K L E I K R A A
 AGCAGTACCTCAGGCCCCGCCACCTTCGGCCAGGGCACCAAACTGGAATCAAACGCGCGGCCGC

Figure 8

Anti-human OX40R scFv SC02012

NcoI
~~~~~  
M A E V Q L V E

72 CCATGGCTGAAGTGCAGCTGGTGA

S G G G L V K P G G S L R L S C A A S G F T F S  
AAGCGGCGGCGGCTGGTGAAGCCGGGTGGCAGCTGCGCCTGAGCTGCGCCGCTAGCGGCTTCACCTTTA

214 N D S M N W M R Q A P G K G L E W V A N I N Q  
GCAACGACTCGATGAAGTGGATGCGCCAGGCCCGGGCAAAGGCCTCGAATGGGTGGCCAATATCAATCAG

285 D G N E K Y Y A D S V K G R F T I S R D N S K N  
GATGGCAACGAAAAATATTACGCCGACTCTGTCAAAGGCCGCTTCACCATCAGTCGCGATAACTCCAAAAA

356 S L Y L Q M N S L R D E D T A L Y Y C A R A R  
CTCCCTGTACCTGCAGATGAACAGCCTGCGCGACGAAGATACCGCCCTGTACTACTGCGCACGCGCCGCG

427 A A G T I F D Y W G Q G T L V T V L E G T G G S  
CCGCCGGCACCATCTTCGATTACTGGGGCCAGGGCACCTGGTGACCGTGCTCGAGGGTACCGGAGGTTC

498 G G T G S G T G T S E L D I Q M T Q S P S S L S  
GGCGGAACCGGGTCTGGGACTGGTACGAGCGAGCTCGATATCCAGATGACCCAGAGCCCGAGTTCCTGAG

569 A S V G D R V T I T C R A S Q N V S N Y L T W  
CGCCTCCGTGGGCGACCGCGTGACCATCACCTGCCGCGCCAGCCAGAACGTCAGCAACTACCTGACCTGGT

640 Y Q Q K P G K A G K L L I Y A A S S L Q S G V P  
ACCAGCAGAAACCGGGCAAGGCTGGCAAACCTGCTGATTTACGCCGCCAGCAGCCTCCAAAGCGGCGTGCCG

711 S R F S G S G S G T D F T L T I S S L Q P E D F  
TCTAGATTAGTGGCTCCGGCTCCGGAACCGATTTTACCCTGACCATCAGCAGCCTGCAGCCGGAAGATTT

782 A T Y Y C Q Q S Y F N P A T F G Q G T K L E I  
CGCTACCTACTATTGTCAGCAGTCTTCAACCCGGCGACCTTCGGCCAGGGCACCAAACTGGAAATCA

NotI  
~~~~~  
K R A A

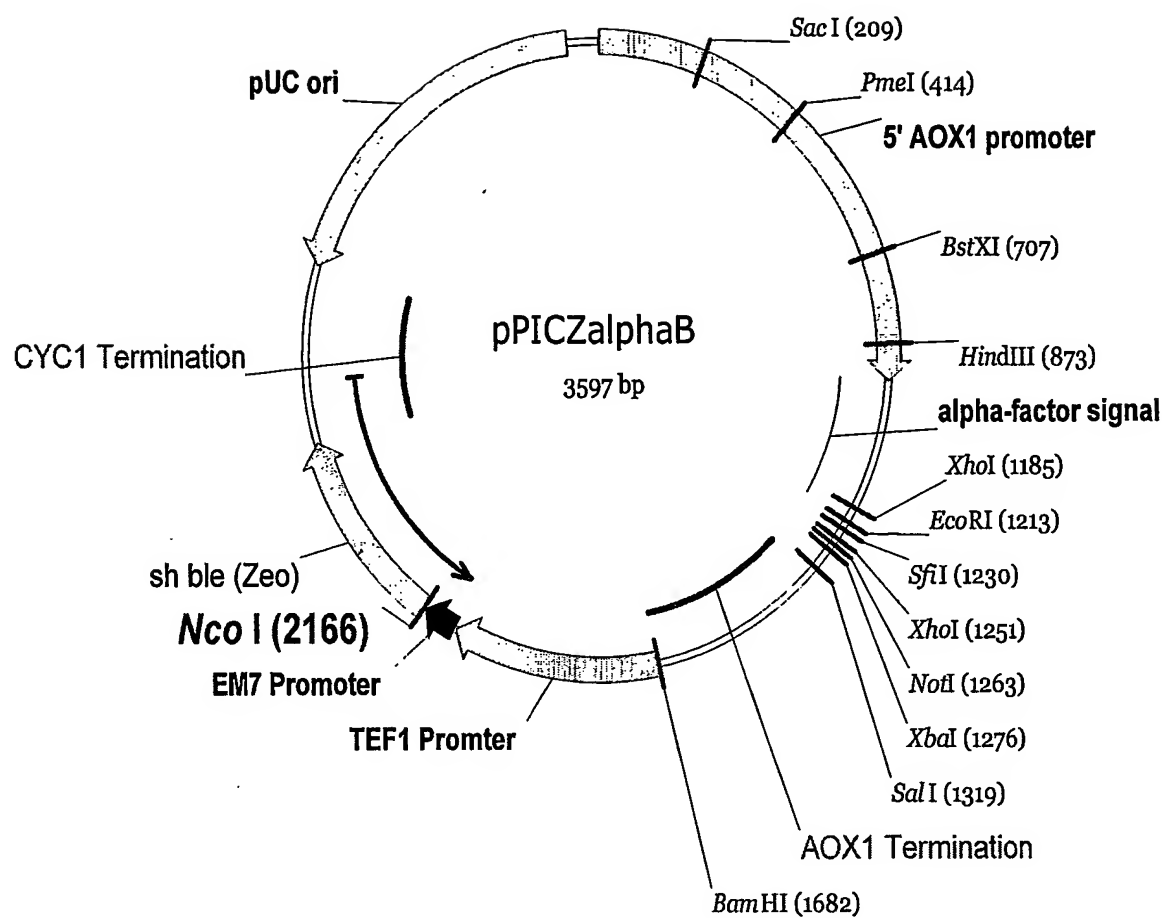
853 AACGCGCGGCCGC

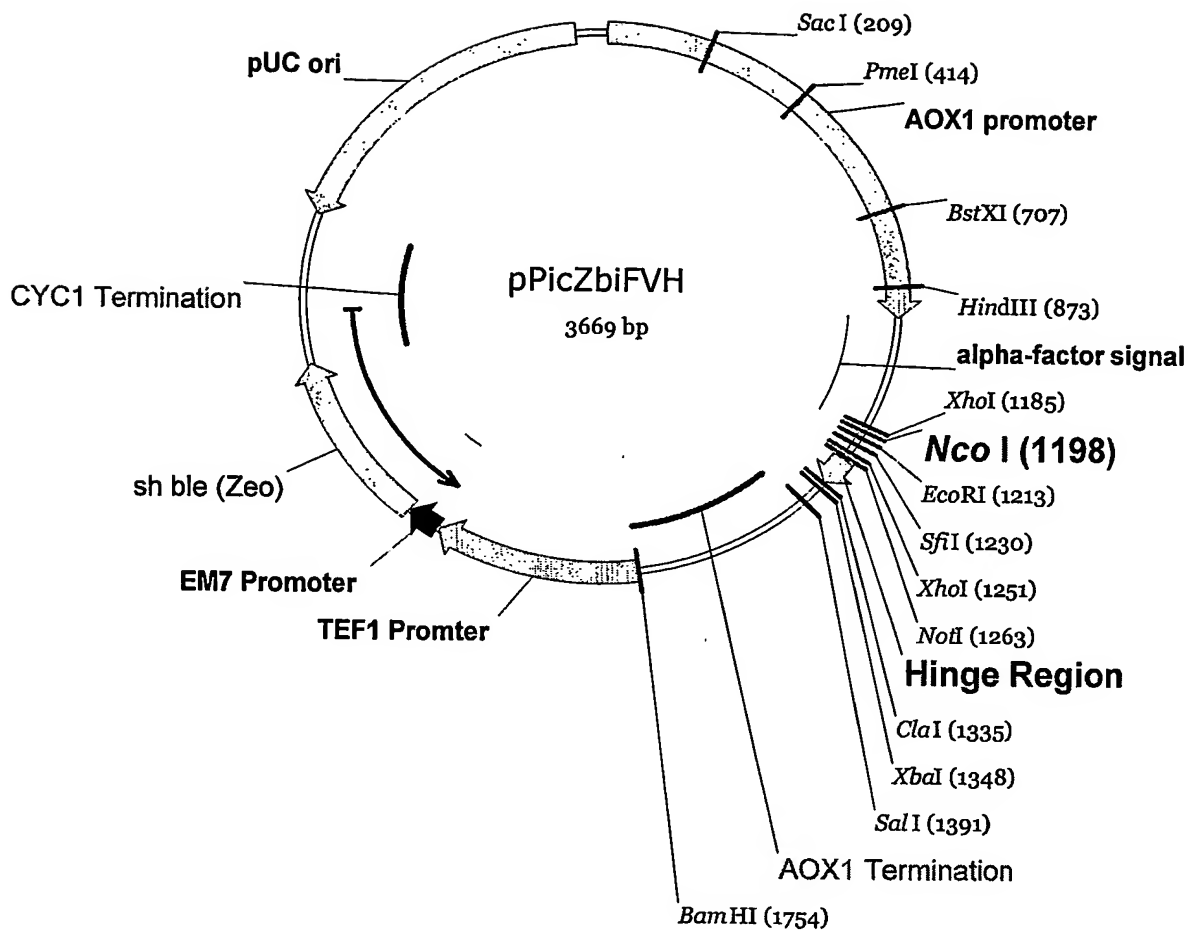
Figure 9

Anti-human OX40R scFv SC02021

NcoI
 ~~~~~  
 M A E V Q L V E S G G G L  
 CCATGGCTGAGGTGCAGCTGGTGGAGTCTGGGGGAGGCTTG  
 V Q P R G S L R L S C A A S G F T F S S Y A M N  
 GTACAGCCTAGGGGGTCCCTGAGACTCTCTGTGCAGCCTCTGGATTACCTTTAGCAGCTACGCGATGA  
 W V R Q A P G K G L E W V A V I S Y D G S N K  
 CTGGGTCCGCCAGGCGCCCGGAAGGGGCTGGAGTGGGTGGCAGTTATATCATATGATGGAAGCAATAAAT  
 Y Y A D S V K G R F T I S R D N S K N T L Y L Q  
 ACTACGCAGACTCCGTGAAGGCCGATTACCATCTCCAGAGACAATCCAAGAACACGCTGTATCTGCAA  
 M N S L R A E D T A V Y Y C A K D R Y I T L P N  
 ATGAACAGCCTGAGAGCTGAGGACACAGCCGTGTATTACTGTGCCAAAGACCGCTACATCACGTTGCCGAA  
 A L D Y W G Q G T L V T V L E G T G G S G G T  
 CGCGTTGGATTACTGGGGCCAGGGCACCCCTGGTGACCGTGCTCGAGGGTACCGGAGGTTCCGGCGGAACCG  
 G S G T G T S E L D I Q M T Q S P V S L P V T P  
 GGTCTGGGACTGGTACGAGCGAGCTCGACATCCAGATGACCCAGTCTCCAGTCTCACTGCCCGTCAACCCCT  
 G E P A S I S C R S S Q S L L H S N G Y N Y L D  
 GGAGAGCCGGCCTCCATCTCTCGCAGGTCTAGTCAGAGCCTCCTGCATAGTAATGGATACAACATATTGGA  
 W Y L Q K P G Q S P Q L L I Y L G S N R A S G  
 TTGTGACCTGCAGAAGCCAGGGCAGTCTCCACAGCTCCTGATCTATTTGGGTTCTAATCGGGCCTCCGGGG  
 V P D R F S G S G S G T D F T L K I S R V E A E  
 TCCCTGACAGGTTTCAGTGGCAGTGGATCAGGCACAGATTTTACACTGAAATCAGCAGAGTGGAGGCTGAG  
 D V G V Y Y C Q Q Y K S N P P T F G Q G T K V E  
 GATGTTGGGTTTATTACTGCCAGCAGTACAAGTCGAACCCGCCCACCTTCGGCCAGGGCACCAAGTGGAA  
 NotI  
 ~~~~~  
 I K R A A
 AATCAAACGCGCGGCCGC

Figure 10

**Figure 13A**

**Figure 13B**

5' Cloning site of pPicZαB

XhoI KEK2 EcoRI SfiI
 ~~~~~                      Cleavage                      ~~~~~                      ~~~~~  
                                          ↓                      site  
 S L E K R E A E A A G I H V A Q P A  
 1151 TCTCTCGAGA AAAGAGAGGC TGAAGCTGCA GGAATTCACG TGGCCCAGCC GGCCG  
 AGAGAGCTCT TTTCTCTCCG ACTTCGACGT CCTTAAGTGC ACCGGGTCGG CCGGC

## 5' Cloning site of pPicZFVH

XhoI                      KEK2                      NcoI                      EcoRI                      SfiI  
 ~~~~~                      Cleavage                      ~~~~~                      ~~~~~  
 ↓ site
 S L E K R A M E A A G I H V A Q P A
 1151 TCTCTCGAGA AAAGAGCCATGGAAGCTGCA GGAATTCACG TGGCCCAGCC GGCCG
 AGAGAGCTCT TTTCTCGGTACCTTCGACGT CCTTAAGTGC ACCGGGTCGG CCGGC

synthetic hinge fragment

← NotI Flexible upper Cysteine residues
 hinge region available for
 disulphide bonding
 ↓ ↓
 A A A P K P S T P P G S S C P P C .
 1 GCGGCCGCGC CAAAGCCAAG TACCCACCA GGTTCATCAT GTCCACCATG
 CGCCGCGCGC GTTTCGGTTC ATGGGGTGGT CCAAGAAGTA CAGGTGGTAC
 Short linker ClaI XbaI
 ~~~~~                      ~~~~~                      ~~~~~  
 P G S G G A P I D S G F L  
 51 TCCAGGCTCT GCGGGTTCGC CAATCGATAG CGGCTTTCTA GA  
 AGGTCCGAGA CCGCCACGCG GTTAGCTATC GCCGAAAGAT CT

Figure 13C

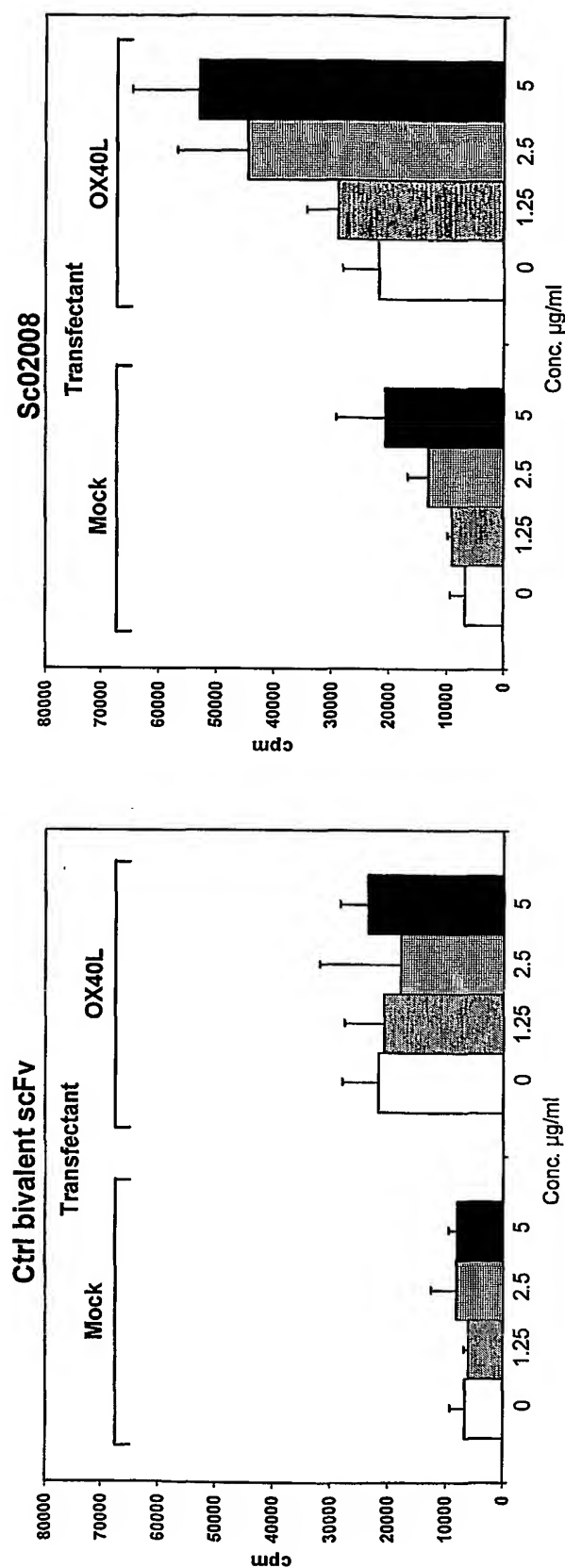


Figure 14A

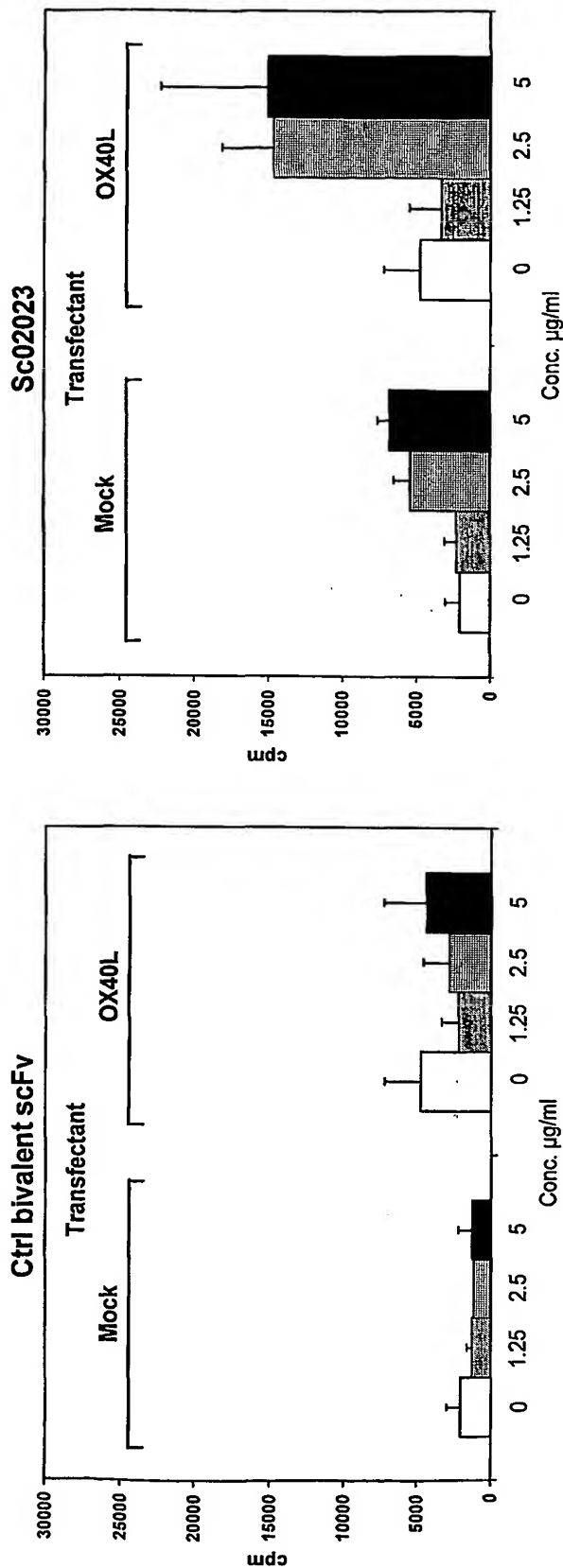


Figure 14B

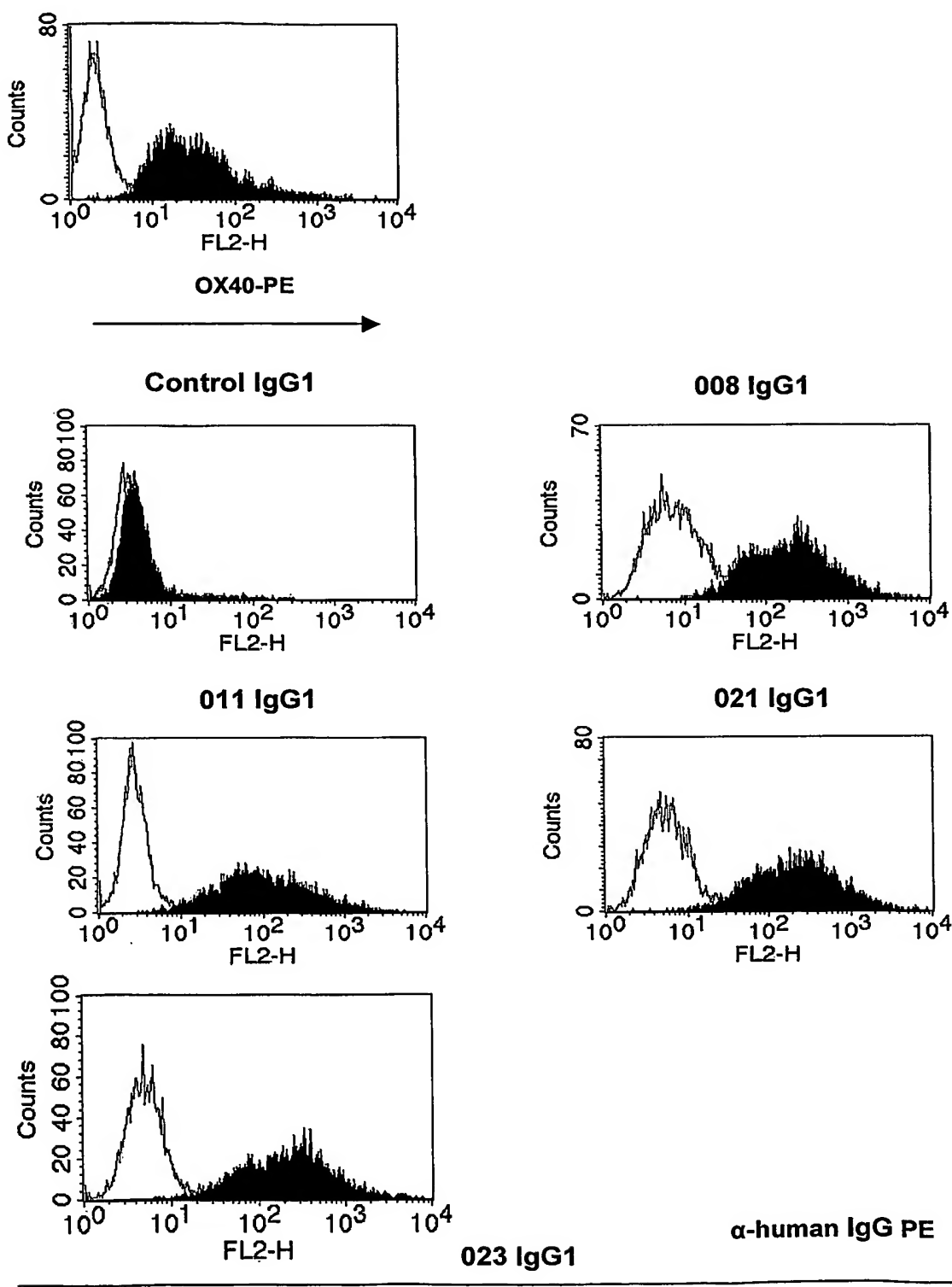


Figure 15